Stimuli™

Integrated Refraction System

Egonomic Remote Controller

Direct Keyboard Access

Programmable Tests

Stimuli 4 Advanced Duo represents an increase in usability with both remote and a desktop keyboard.

Test selection and chart features are accessed more effortlessly than ever.

Our small, handheld wireless remote control never requires you to point it at the screen.

Wireless desktop Direct Access keyboard features single button selection of tests.

Based on International Standards

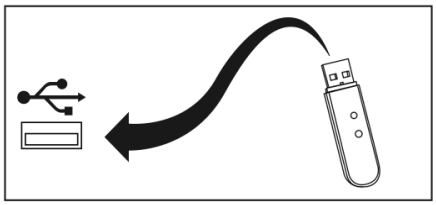
Version 4.1 Advanced Duo

Accommodata Corporation

U.S. Patent Number 6,108,634
U.K. Patent Number 2329992
Japan Patent 3302697

Germany Patent 19781691
Canada Patent 2,251,080
Other Patents Pending

Setting Up Your System



Installing the Remote

Your system will come with an RF remote which has already been paired with the system. Should the remote need to be reinstalled follow these simple steps:

Step 1

Connect the Remote's USB radio receiver into any available USB port on the computer.
When connecting, the receiver's status light will flash while synchronizing with the system.
After this synchronization period, the blinking will stop and the light will remain on.
The status light will then blink rapidly while receiving a signal from the remote.

Step 2

Ensure that the clear battery protector film that separates the Remote's battery (located on the back of the remote in the battery compartment) is removed.

Step 3

Be sure that the remote's ON/OFF button (located on the back of the remote) is in the ON position.

Pairing

If you cannot proceed after these steps, the Remote and the USB Receiver may need to be "paired".
Press the ID Pair button (located on the receiver). The status LED will blink once per second.
While it is blinking, press the Change ID button (located on the back of the remote).
The LED on the receiver will blink rapidly for a few seconds and then return to solid (ON), indicating that pairing is complete.

Installing the Security Key

To install the Security Key, simply plug the Key into any available USB port on the computer.

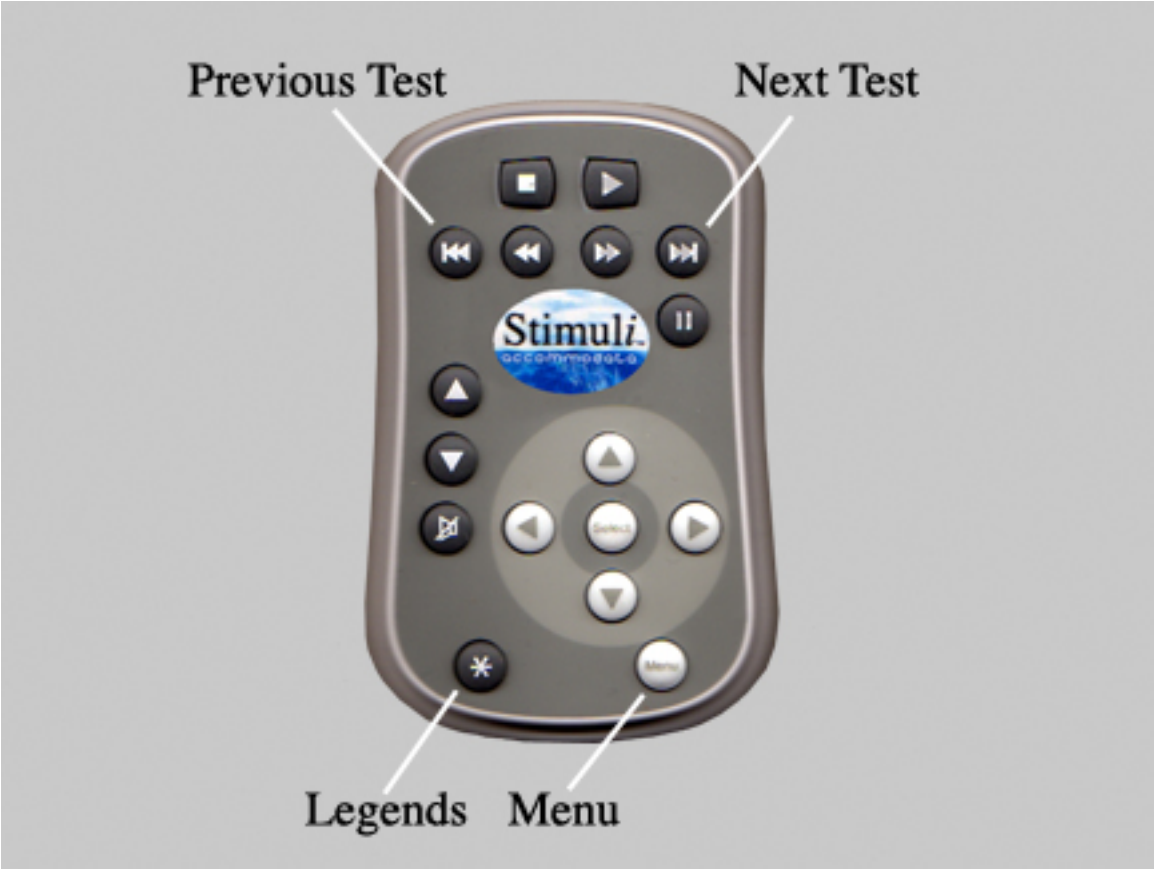
Starting Up

Your Stimuli system from Accommodata Corporation can automatically turn on and off at preset times. This is adjusted through the "Schedule" option under "Energy Saver" of the System Preferences control panel. Please refer to Apple documentation. You may also start up manually at any time by pressing the Power button on the unit. The system will be available for use in about a minute.

Stimuli is set to launch when the computer is started. If it is not configured this way, or you have exited Stimuli, you may launch Stimuli by pressing the "Star" button on the remote control. (If a keyboard and mouse are connected, you may also launch Stimuli by double-clicking its icon on the desktop.)

When you see the Stimuli startup screen press the Next Test button on the remote control to advance to the vision testing mode, or use the Direct Access Keyboard to select the desired test.

The Stimuli Remote



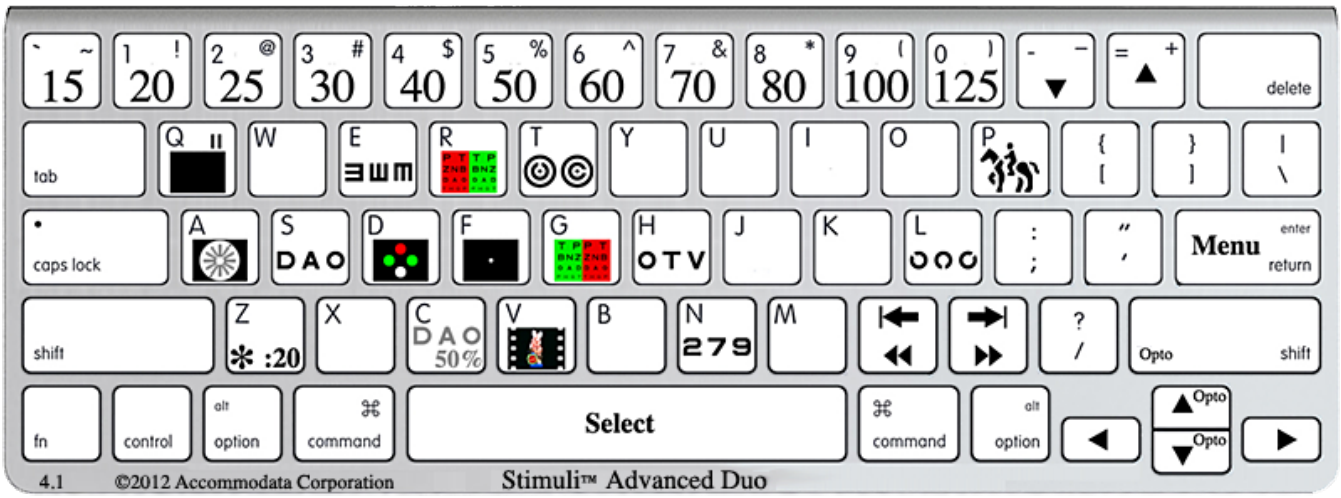
Designed for ease of use, the lightweight Stimuli Remote hand controller allows wireless control of all functions without the need for a bulky controller. The geometric layout allows the practitioner to make selections without looking at the remote.

Logical groupings of functions make control of each test intuitive.

Its range is over 10M (35 feet) and since it uses Radio Frequency it is not necessary for it to be pointed at the screen and can even be concealed in a pocket.

A "Help " screen and all Stimuli setup screens are available through the "Menu" button on the bottom right of the wireless remote. The Help option will show which buttons control each individual test.

The Stimuli Direct Access Keyboard



Stimuli has always been the easiest system to use. In addition to providing ease of control with our ergonomic handheld remote, Stimuli Advanced Duo now includes control of tests and system features with our unique wireless keyboard. The Stimuli Direct Access keyboard supports direct access to tests, sizes, and videos. All remote functions are duplicated on the Direct Access Keyboard.

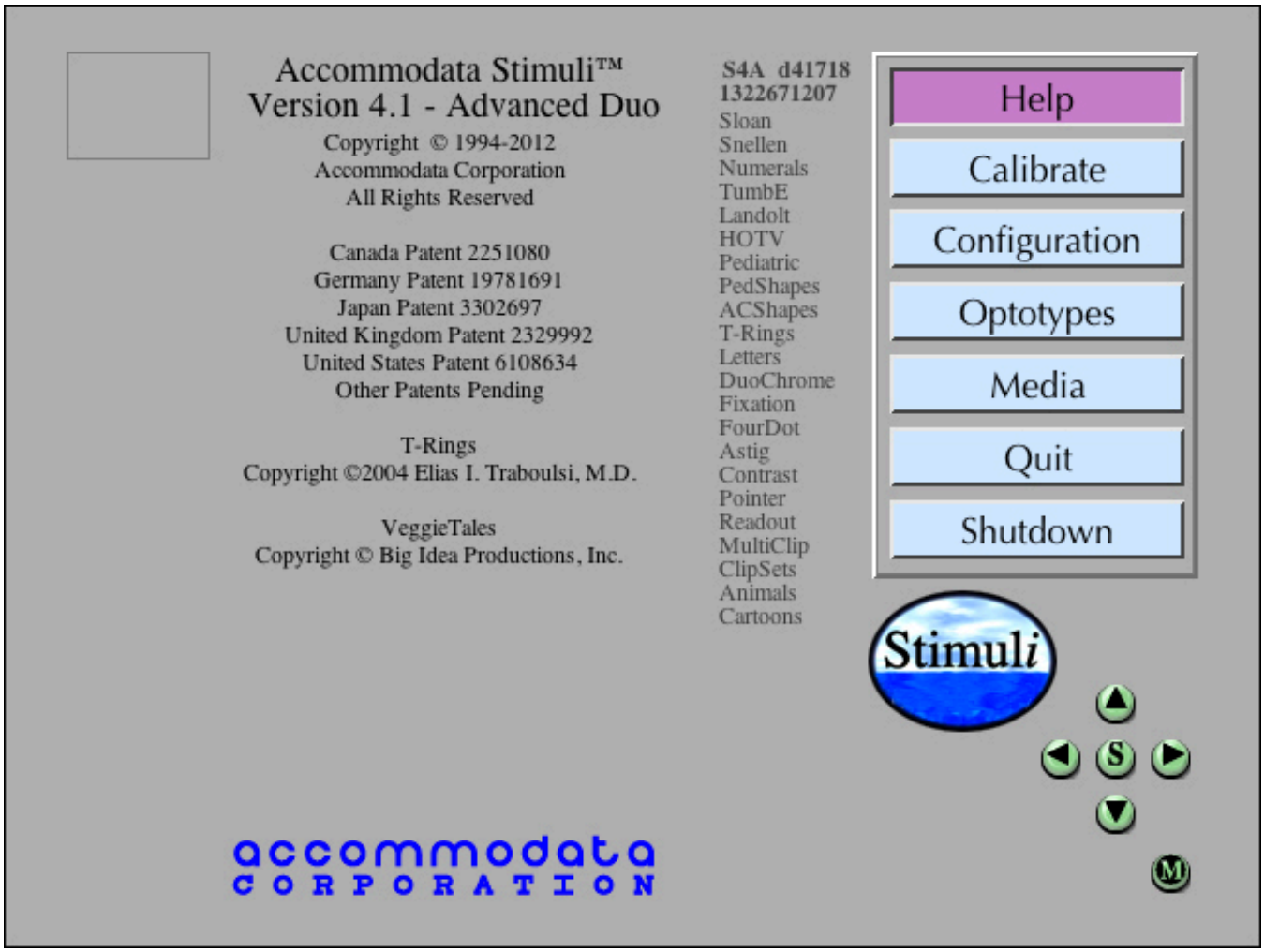
Letter Charts	Additional Charts
S = Sloan Acuity Charts	**A** = Astigmatic Dial
E = Tumbling "E" Illiterate Chart	**D** = 4-Dot Test
H = HOTV	**F** = Fixation
L = Landolt Rings	**Special Controls**
T = Traboulsi "T-Rings" Targets	**Q** = Blank Screen / Pause
P = Pediatric Shapes	**Z** = Legends
N = Numerals	**V** = Videos
R = Red / Green Duochrome	**Space** Bar = Select / New Chart
C = Contrast Sensitivity	**Return** Key= Main Menu

Next and previous tests, sub-tests, and charts, as well as changing sizes, optotypes, and programming a test with special size, optotpe, and chart are also all available.

The Stimuli remote control and the Stimuli Direct Access Keyboard can be used separately or together.

Controlling the Stimuli System

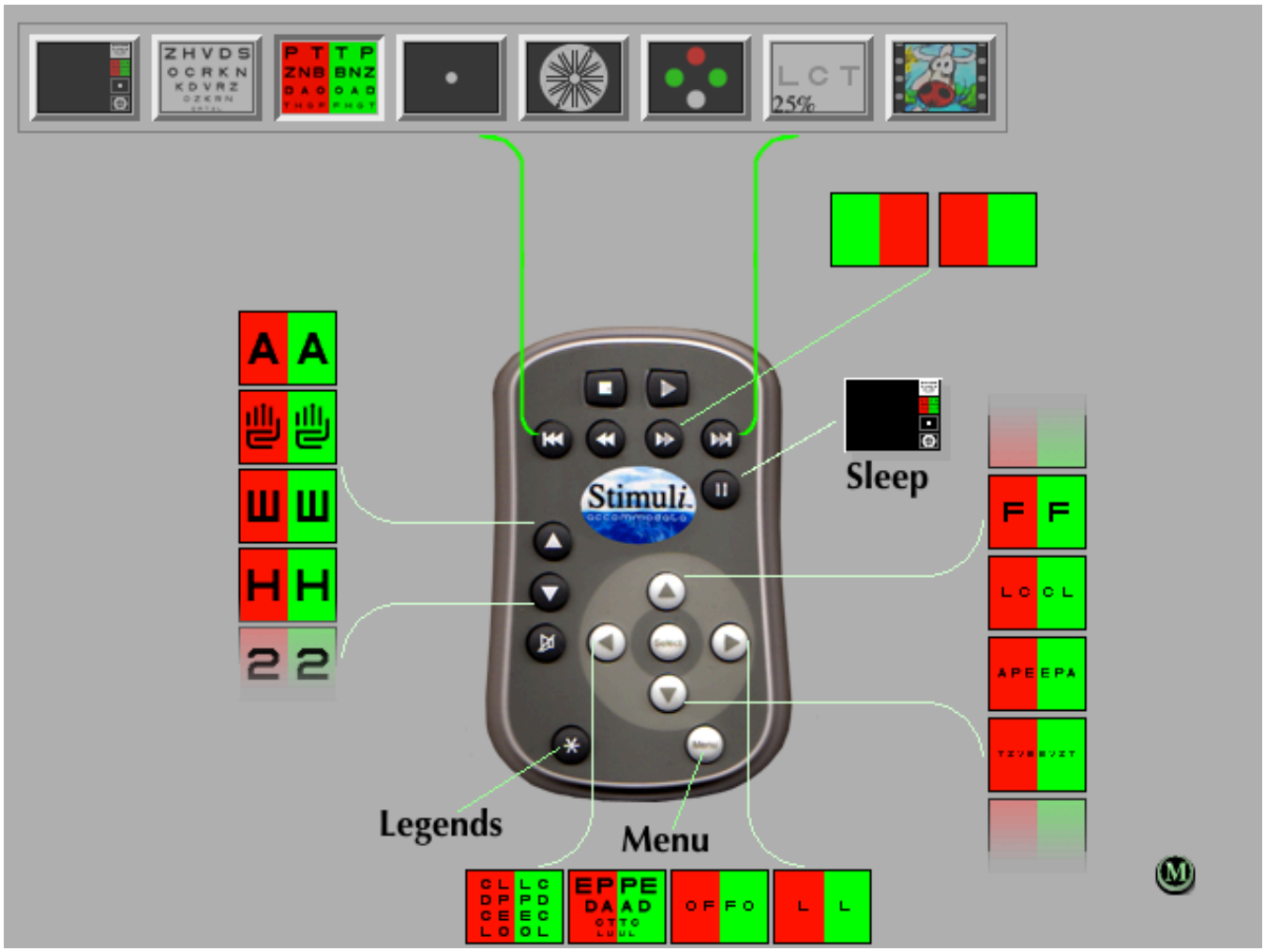
Stimuli System Main Menu is reached through the **Menu** button on the remote, or the **Return/Menu** key on the keyboard. To return from any setup screen, press the **Menu** button or **Return/Menu** key again.



Help	**Displays functions of the Wireless Remote Control.**
Calibration	**Allows access to Calibration controls of the unit.**
Configuration	**Permits adjustment of Stimuli options & features.**
Optotypes	**Supports selection of optotypes presented.**
Media	**Adjusts all film clip display and volumes.**
Quit	**Allows you to leave the Stimuli program.**
Shutdown	**Quits and shuts down the computer.**

Navigation of the control screen is affected by the Up and Down navigation buttons on the Remote or Keyboard. Simply scroll to the desired feature and press the **Select** button, or **Space/Select** on the keyboard to enter the chosen control screen.

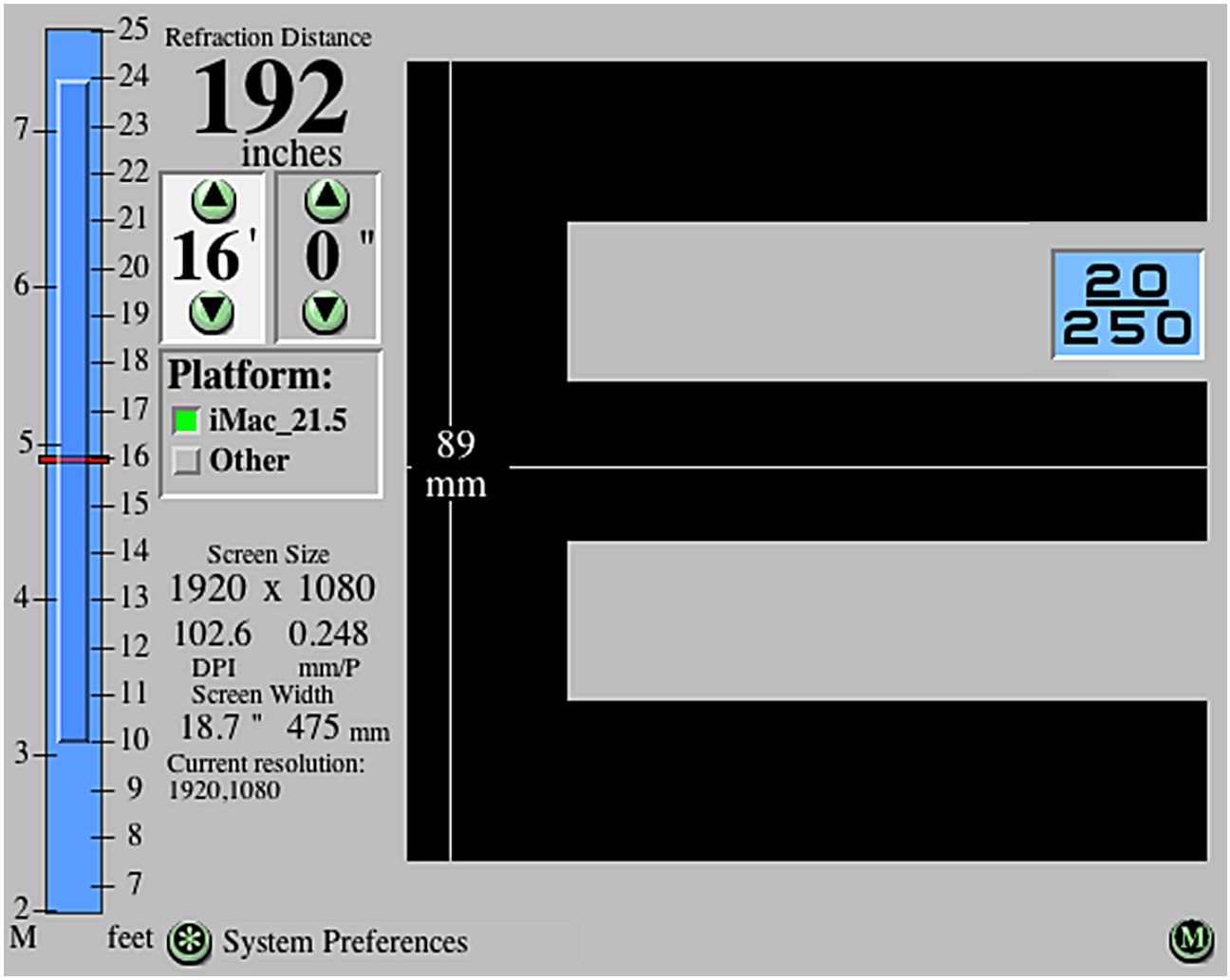
The Help Screen



The Help screen provides explanations of the different tests and the buttons used to control test features. The graphical help for the Remote for each test is adjusted to the features which are included with the system. For example, here is a help screen for a DuoChrome test.

The Direct Access Keyboard map is also shown, and the analogous controls (e.g., Up, Down, &c.) on the Keyboard serve the same control functions as depicted for the Remote.

Calibrating the System



Your system should be delivered calibrated for your examination room from your local dealer. If for some reason you wish to change the calibration or if you have moved the unit and need to adjust the calibration, follow these instructions:

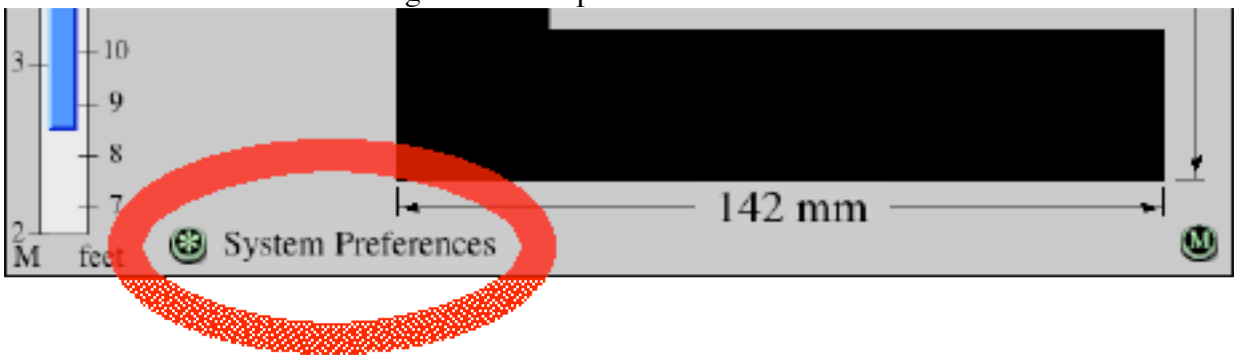
Press the Menu button on the handheld remote control to reach the main Menu screen. Using the Up and Down arrow buttons, scroll down until Calibration is highlighted and press Select on the remote or Space/Select on the keyboard. You can navigate the calibration screen controls with the Right and Left arrow buttons and then use the Up/Down arrow buttons to adjust each aspect.

The on-screen calibration calculator tells the user the measurable on-screen size. The maximum resolution setting for the computer must be used. (For older CRT displays that have adjustable rasters, the following procedure requires confirming the size of the test "E" by measuring it on the screen with a ruler.)

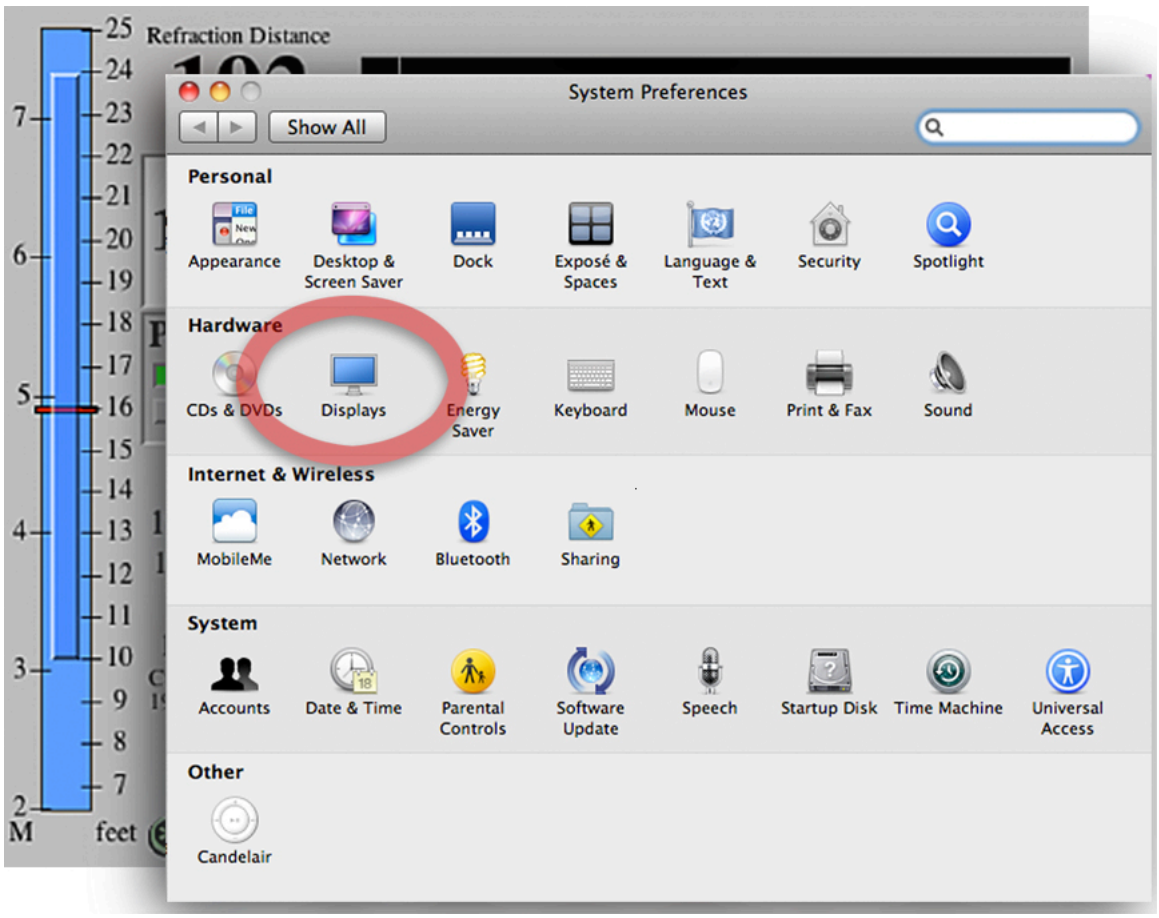
Calibration of the Stimuli System requires three steps.

Step #1. Adjust display to its maximum resolution.

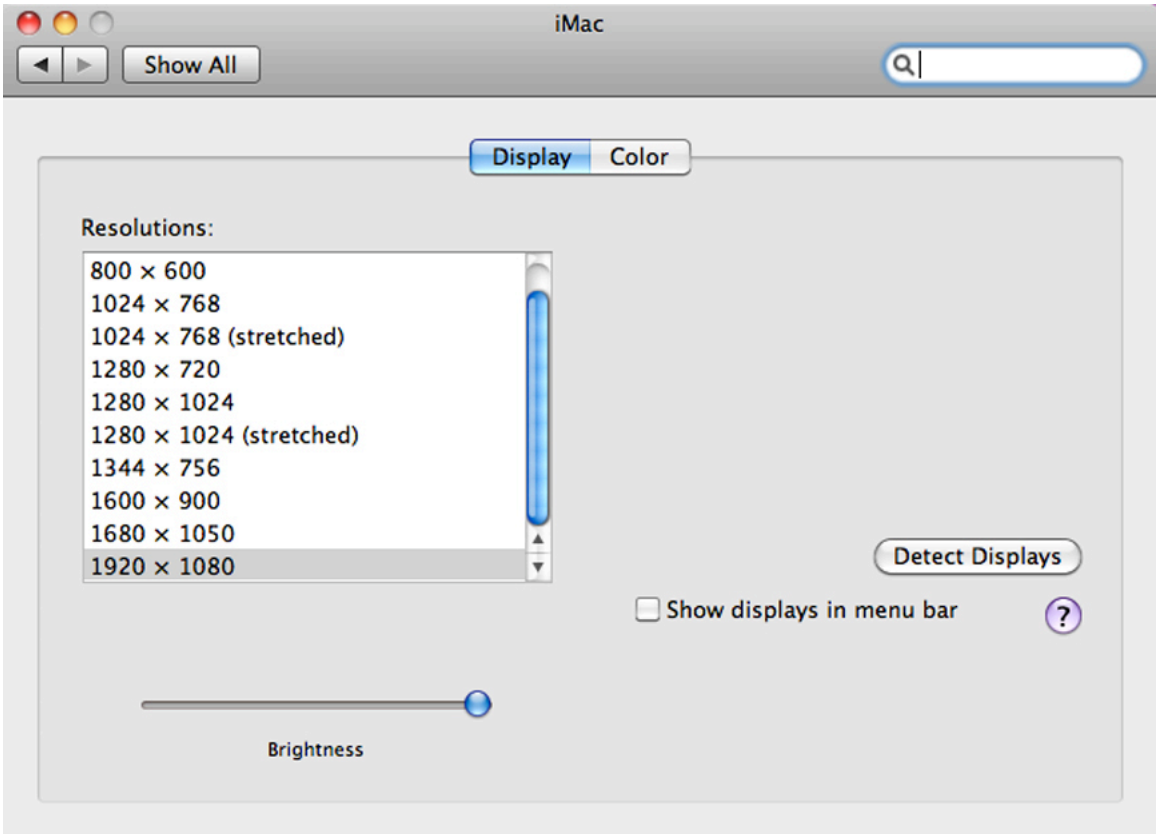
The maximum resolution setting for the computer must be used.



The computer should arrive already set to its maximum resolution. To confirm this or to adjust the resolution of the screen, launch the System Preferences on top of Stimuli by pressing the Star button or "Z" on the keyboard.



Choose the “Displays” function in under “Hardware” to set to the maximum resolution. Please refer to the Apple documentation that came with your computer. Ensure the mouse is connected to the system.



ACTION:
Adjust the Resolution of the monitor to its maximum by choosing the setting. Close the Preferences window and click on the Stimuli screen.

OUTCOME:
Your system is now set for the highest resolution.

Step #2. Selecting the Platform.

ACTION:
Ensure that the correct Platform is selected by pressing the Right arrow button to move the white Highlight Box to the "Platform" pane and select the correct "Platform" or computer you are using. For example, when using a typical iMac-based system choose "iMac_21.5". The "Other" setting is for any other computer display size such as a larger iMac, or an older platform.

If using "Other" the horizontal and vertical resolutions must be entered in the fields provided. Then screen's resolution may be entered as: dots-per-inch (DPI); pixels-per-millimeter; or simply by entering the screen's actual width in inches or millimeters. The other terms will be automatically calculated.

OUTCOME:
The above adjustments have selected the type of computer you are using and provided the screen resolution.

Step #3. Setting the Refraction Distance

Measure the refraction distance from screen to patient's eyes.
Using the Left and Right arrow buttons, move the Highlight Box to the "Foot" adjustment and select the refraction distance to the nearest foot using the Up and Down arrow buttons. Using the Right arrow button, highlight the "Inches" adjustment and adjust the inches for the refraction distance as measured in the room. (If you prefer to work in meters then navigate to the Configuration screen and select Units: "Metric").

For an LCD flat-panel monitor:
Confirm the measurement of the calibration target "E". Measurement is best effected by closing one eye and looking directly at the edge of the letter while aligning a ruler laid on the screen. The indicated measurement should be within a fraction of a millimeter of the measured size.

For an older CRT monitor:
To calibrate Cathode Ray Tube monitors, use the Height and Width size adjustments on the monitor itself (refer to monitor's User Manual), adjust the size of the calibration target "E" until it exactly equals the calculated size.

If the "Displays" Control Panel is in front of the letter and blocking your view, simply use the mouse to move the window by clicking and holding the title bar at the top of the window and dragging the window to a new position. Note: If you happen to click anywhere outside the Control Panel, then the Stimuli Calibration Setup screen will come to the front, occluding the Control Panel. Simply select the "System Preferences" function again. Close the "Displays" Control Panel. Click once on the Calibration Setup screen to ensure it is in the front to receive commands.

Now press the Menu button once on the remote or Return/Menu on the keyboard to get to the Menu screen and using the Down arrow button select "Quit" and press the Select button on the remote or Space/Select on the keyboard. The system will save all settings then quit. Simply relaunch as described in "Starting Up" (above) and the Stimuli system is ready to use.

OUTCOME:
You have calibrated your system to a fine accuracy. You can easily check the calibration of your system at any time by going to the Calibration window and measuring the actual refraction distance and the size of the calibration target, and checking it against the denoted size and refraction distance.

Configuring The System

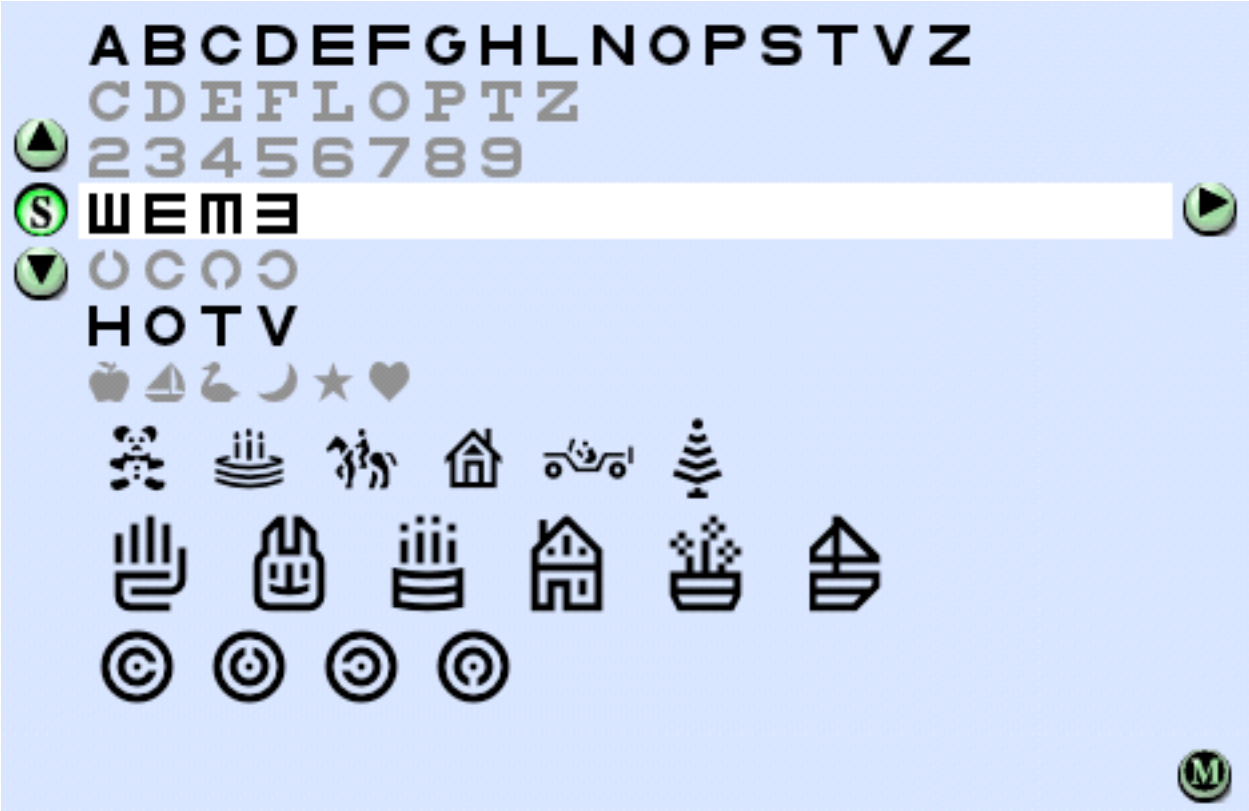
Your Stimuli Advanced Duo can be adjusted to suit a great number of individual preferences. Highlight a particular feature with the Right ▶ or Left ◀ arrow buttons then use Up ▲ and Down ▼ arrow buttons to select the desired option. The system allows changing numerous features.

Calibration units	English or Metric units for refraction computer.
Optotype Units	Snellen, logMAR or Decimal units for optotype legends.
Progression	American modified Snellen or true logarithmic chart progression.
Red/Green Extinction	Allows matching colors to Red/Green glasses.
View	Direct viewing or Reflected (mirrored) examination lane.
Feedback	Clicks when tests change with volume control buttons, or Silent operation.
Legends	Allows selection of Far, Near, Desktop Readout or Audible.
Max. Characters/Line	Adjust the maximum number of characters on a line.
Max. Lines/Chart	Allows setting the maximum number of lines on multi-line charts.
Progressive	Equal number of optotypes per line, or Filled lines on progressive charts.
Master Volume	Overall volume control.

In general, the Menu Ⓜ button (Retuen/Menu on the keyboard) steps back up a level each time it is pressed, all the way back to the current test chart.

Setup Optotypes

Many optotypes are available. Some are options, others are included and may be turned on or off at the clinician's preference.



Highlight an optotype using the Up and Down arrow buttons.

Activate or deactivate optotypes with the Select button (Space/Select on the keyboard).

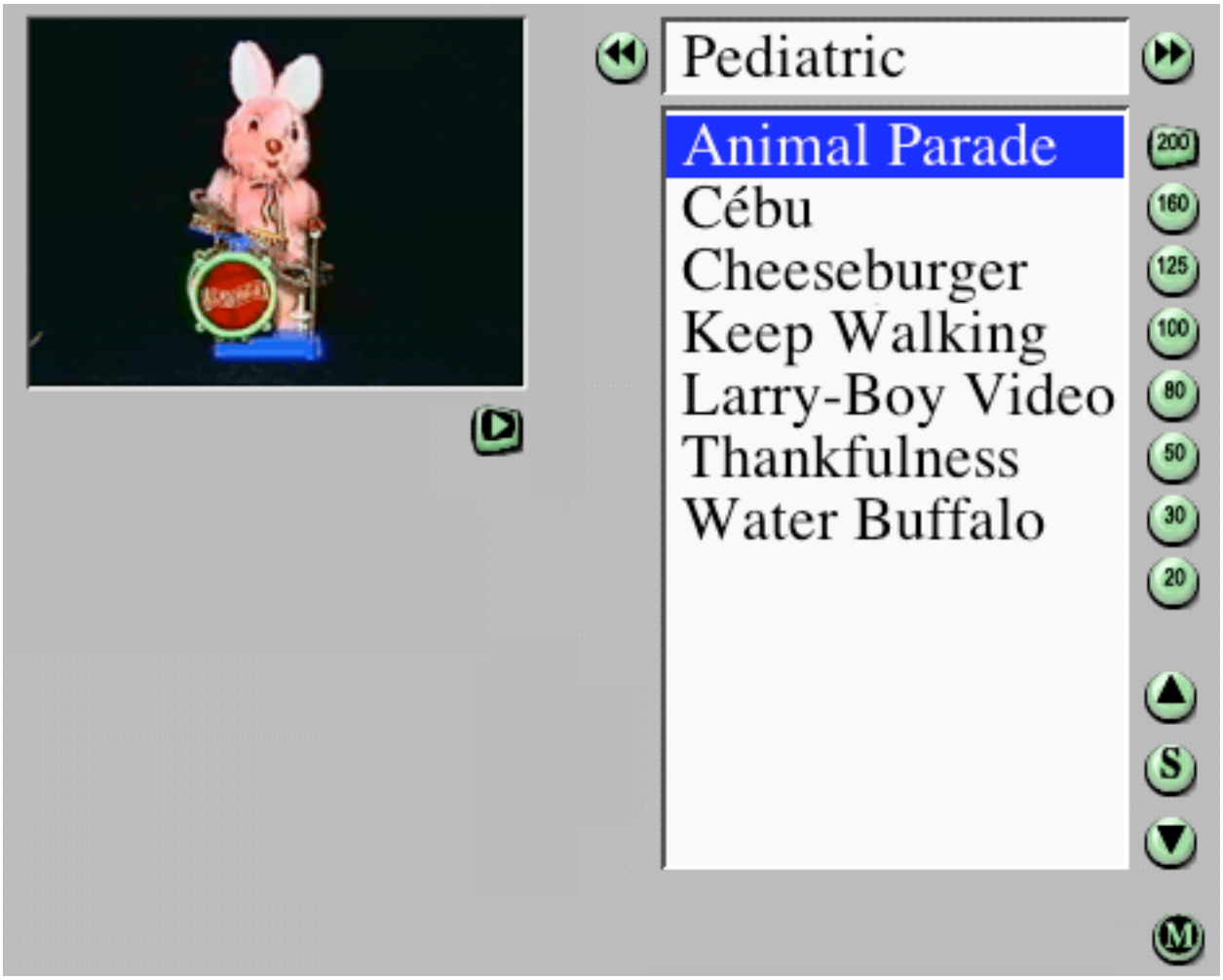
The system is configured to allow customizing of all optotype sets.

The Right arrow button moves to a customization screen for each hi-lighted optotype.

Choices include: "All optotypes ", "Standard Selection", or three "Custom" sets.

To make a custom set, use the "volume" Up and Down buttons to select "Custom 1, 2 or 3"
Use the Left and Right Navigation buttons to make the cursor square traverse the full list of Optotypes, and the button to select the optotypes desired.

Setup Media



Stimuli's fixation/educational videos set the standard.
Our exclusive Animal Parade is a pediatric favorite with interesting motorized animals that don't wear out or require replacement. The automatic sequencing feature moves the system on to a new Animal every few seconds without intervention by the practitioner. Both child and examiner can stay focused on the task at hand with Stimuli™ Animal Parade.

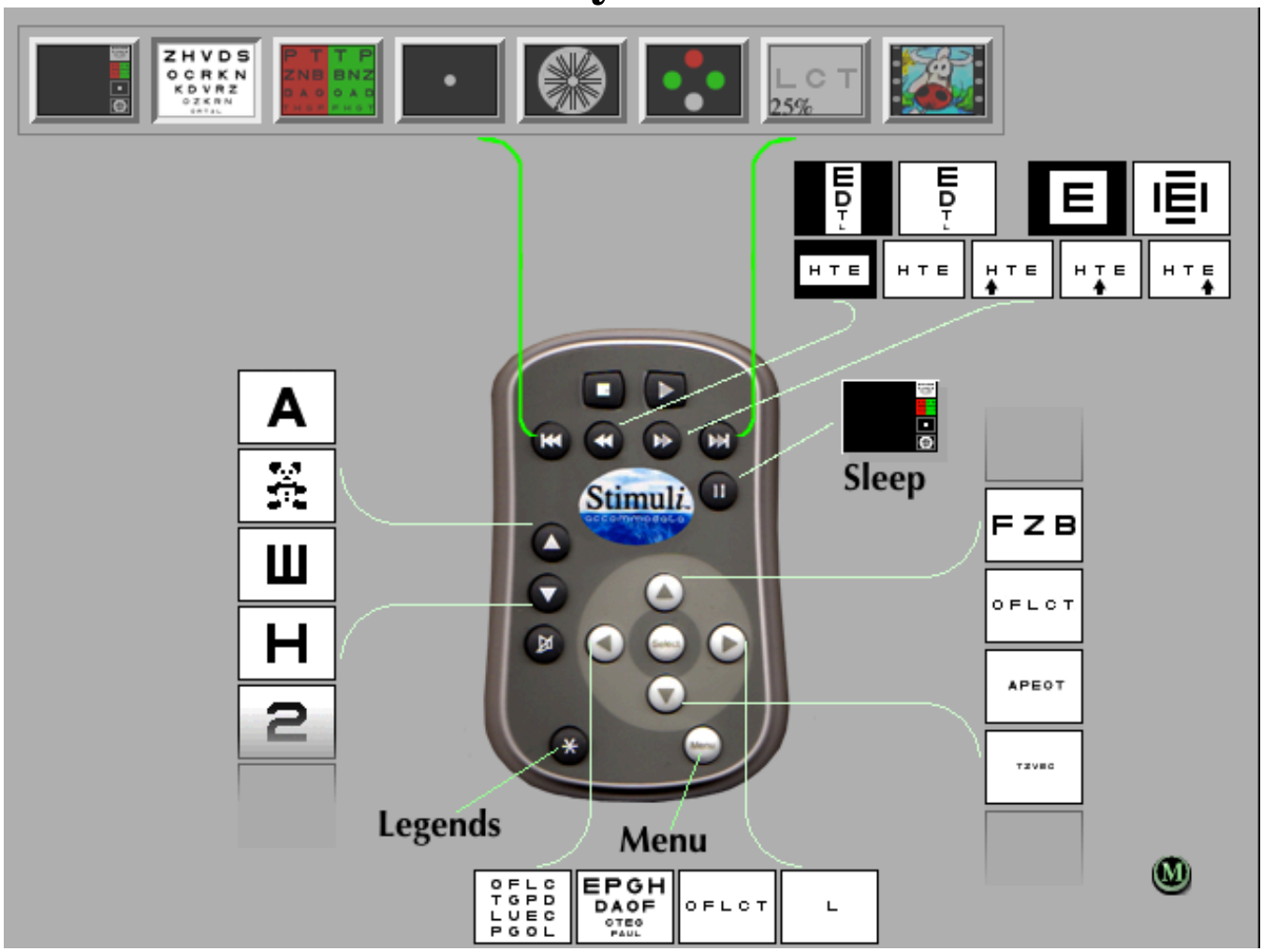
A set of cartoons is also included.

The Video Play button (or "V" on the keyboard) is used to Play and Pause the selected video clip in the review window.
Clips can be directly selected with the "Size" keys. A number of Video Clip folders are available:

The Pediatric Clips folder is included with the system.
Sets of Multiple Clips may be added.

The Sets of Multiple Clips allow different varieties of video clips to be kept in different sets. This is detailed in "Video Clip Sets" on page 19.

Acuity Charts



The four main varieties of Acuity Chart are: Progressive Lines, Single Line, Single Character, and Multiple Lines of the same size. These are chosen with the Left ◀ and Right ▶ arrow buttons.

Sizes are varied with both the Up ▲ and Down ▼ buttons, and with the number row keys of the Direct Access keyboard. Note: additional sizes beyond those represented by the Direct Access keys are available, with variations in progression. If the Modified Progression is configured in Setup, then Up and Down arrows and the Direct Access keys are equivalent (shown with their Snellen "20:" equivalents).

If the Logarithmic Progression is configured, the Up and Down buttons step through the standard logarithmic progression, while the Direct Access keys continue to provide the finer steps of the Modified Progression. For these the Plus and Minus keys also serve to step through the Modified Progression. This gives the practitioner more choices.

In Chart mode, the "volume" Up and Down remote buttons (or shift-Up and shift-Down arrow keys on the keyboard) select the different optotypes available for testing (some of which are optional).

Option Buttons
The two feature buttons and (or "comma" and "period" keys) provide features which act upon the selected chart. These features include a single column when in chart mode, isolation, contour bars, pointer, and an optional inverse (light on dark).

Pointer
A pointer is available when in Line mode. This helps with many younger, older and foreign language speaking patients. It is easily controlled by the and buttons (or "comma" and "period" keys) along with other test features. The pointer is used to indicate the desired test object in a given line of characters. The pointer automatically sizes to be easily viewable to the patient.

Isolation / Contour Bars
When operating in the **Line** or **Single Character** mode, **isolation** is available. The two feature buttons directly above the navigation buttons and (or "comma" and "period" keys) selectively provide an isolation box along with the other features. When in "**single character"** mode, contour bars are also available.

Random Charts
For common letter charts, the first set in a size is a common selection of characters. Each time the Select button or Space/Select key is pressed, a new chart of optotypes is presented which eliminates memorization by the patient. The second and third sets of common optotypes are different, but consistent so that the practitioner can eventually memorize them. After the third chart, all charts are randomly generated. This randomly generated selection eliminates the problematic "Memory Effect" of conventional automatic and manual projector systems.

Legends
Legends are controlled by the star button or "Z" key. Visible legends can be selected in the "Setup" menu. (If a remote display panel is used, it will indicate the Chart, Mode, and test details. A second press of the star button or "Z" key provides a second page of legends for multi-line optotype charts.)

Audible Legends may also be selected which announce the size of the first optotype line, and then announce the identity of each optotype upon a second press of the star button or "Z" key. Young children like this "Talking" test feature which can simplify some testing.

Optional Foot Pedals
Stimuli was first with foot pedal control of charts. This hands-free innovation is a boon to those working with younger patients or patients with special needs. This option is especially useful if the practitioner wishes to use a number of hand held devices such as an occluder. The optional foot pedal unit allows handsfree control of the chart size Up and Down and Select buttons.

Direct Access to Tests

Stimuli has always been the easiest system to use. In addition to providing for direct access to different optotype sizes, and for direct access to film clips when playing, Stimuli supports direct access to tests in more than one way. In addition to the keyboard based test selection, they can be accessed when Paused.

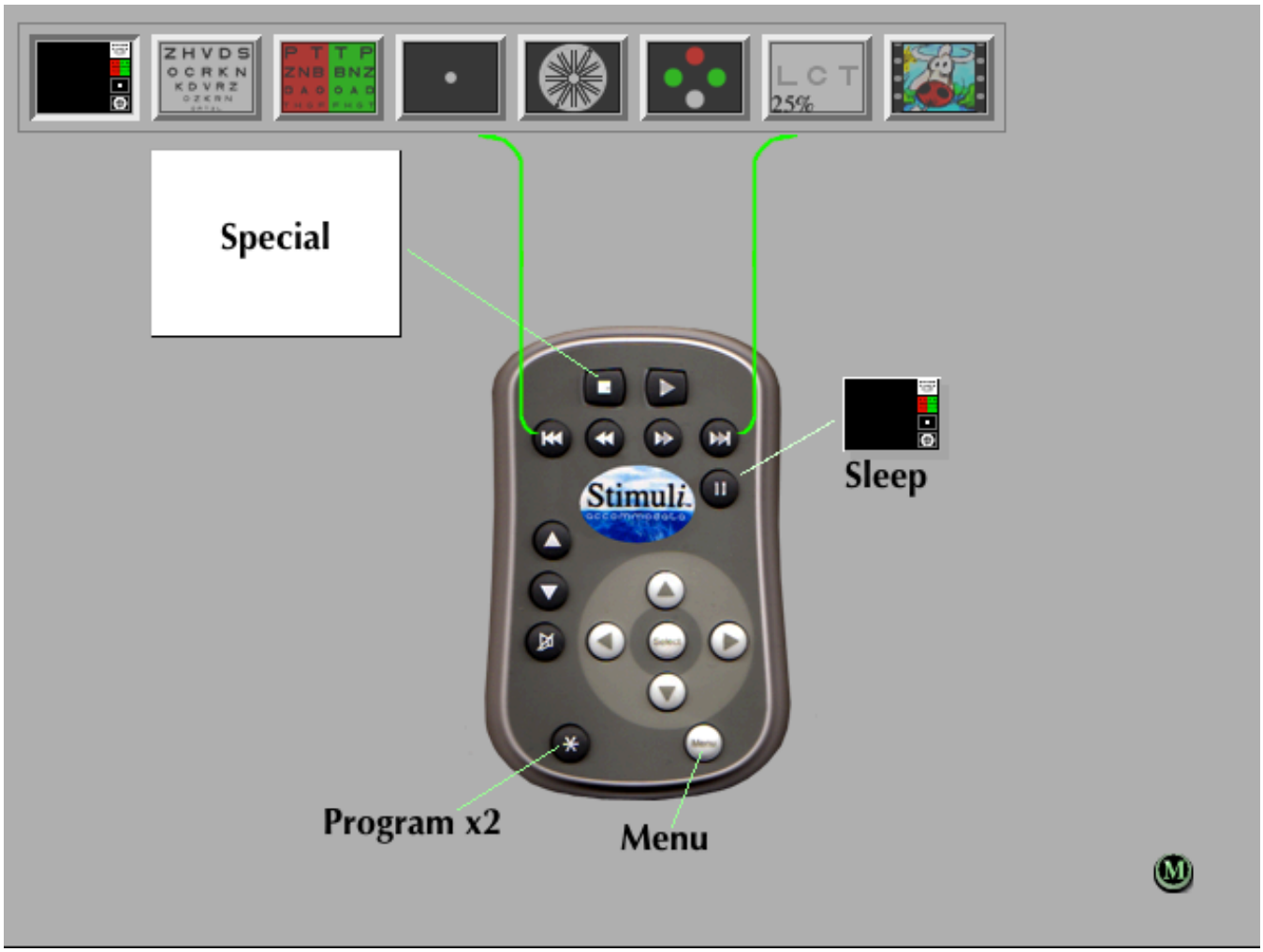
1 Press the Pause button.

2 Press any direct access key.

Key numbers correspond to the different available tests, Modified Progression sizes, and videos:

Chart	Modified Snellen Progression 20:	Key
Programmed Favorite Chart	15	backquote
Acuity Charts	20	1
Red / Green DuoChrome	25	2
Fixation	30	3
Astigmatic Dial	40	4
4-Dot Test	50	5
Contrast Sensitivity	60	6
<reserved>	70	7
<reserved>	80	8
<reserved>	100	9
<reserved>	125	0

Programmability



The initial test screen presented to the patient is a progressive letter chart from 20/20 up to and including 20/80 (depending on screen size). However, Stimuli also supports a programmable chart starting point. To program your favorite chart, size, optotype, and presentation option into memory:

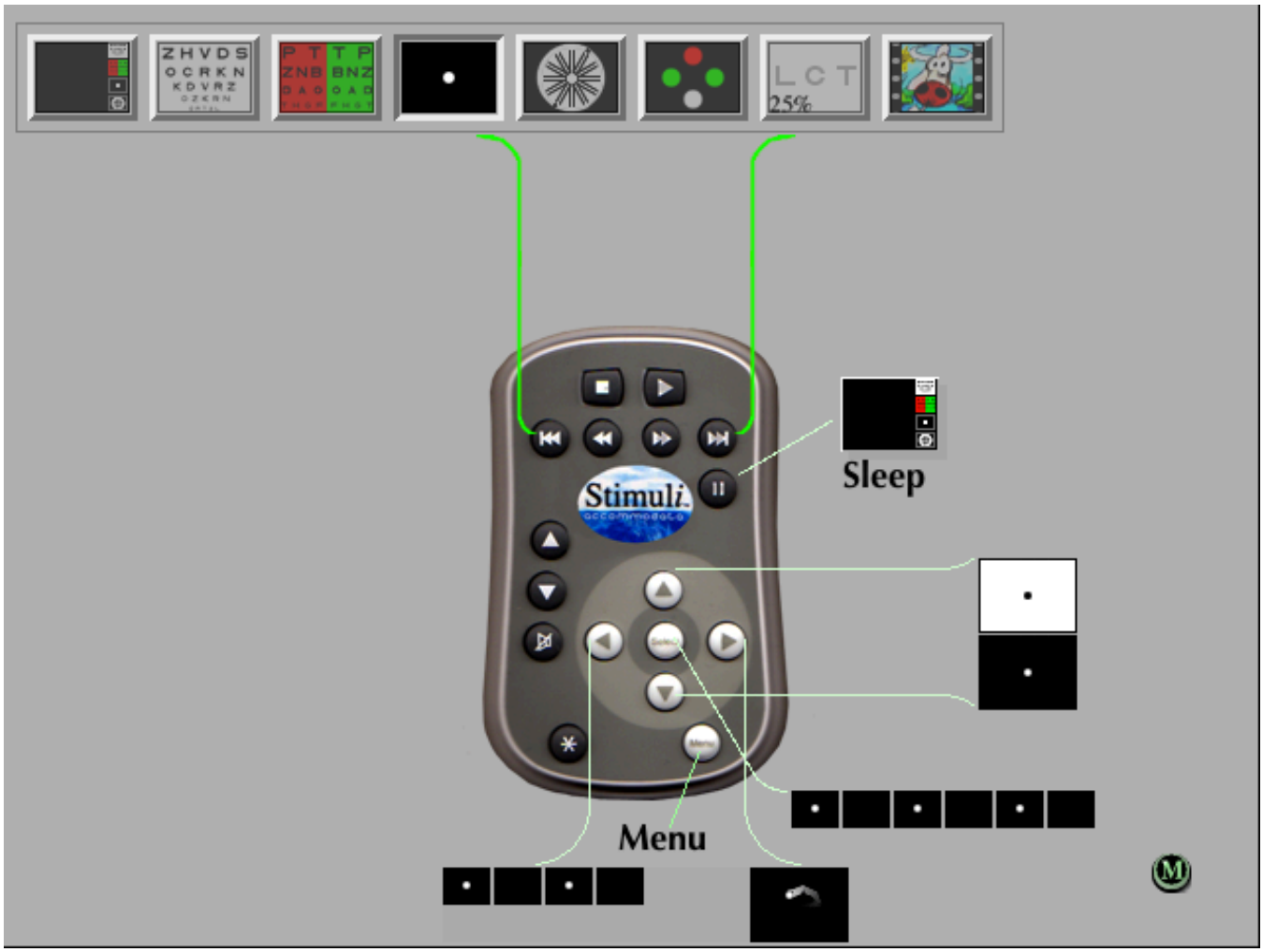
1. Navigate to your favorite test chart, such as the Pediatric single line with Pointer at 20:100.

2. Press the Pause button on the remote or the Pause/"Q" key. The test screen will go into “Sleep” mode (black).

3. Press the bottom left button, Star button twice or the Legends/"Z" key. You will hear a Ding/ Dong, your test is now programmed.

To return to the programmed favorite chart, from anywhere go into Pause and then press the "Square" remote button or the "backquote" key at the top left of the Direct Access keyboard. Stimuli will return directly to your programmed choice. This feature greatly speeds vision testing and helps keep the patient’s attention. The programmed test can be changed at any time.

Fixation Dot



Upon entering this test, you will be presented a white dot on a black background. Stimuli includes many features to make this the most flexible and useful fixation device.

The different features supported include:

1. Disappearing Dot Game.
2. Reversed Black Dot on White background.
3. Animated dot.
4. Flashing Dot.
5. Combinations.

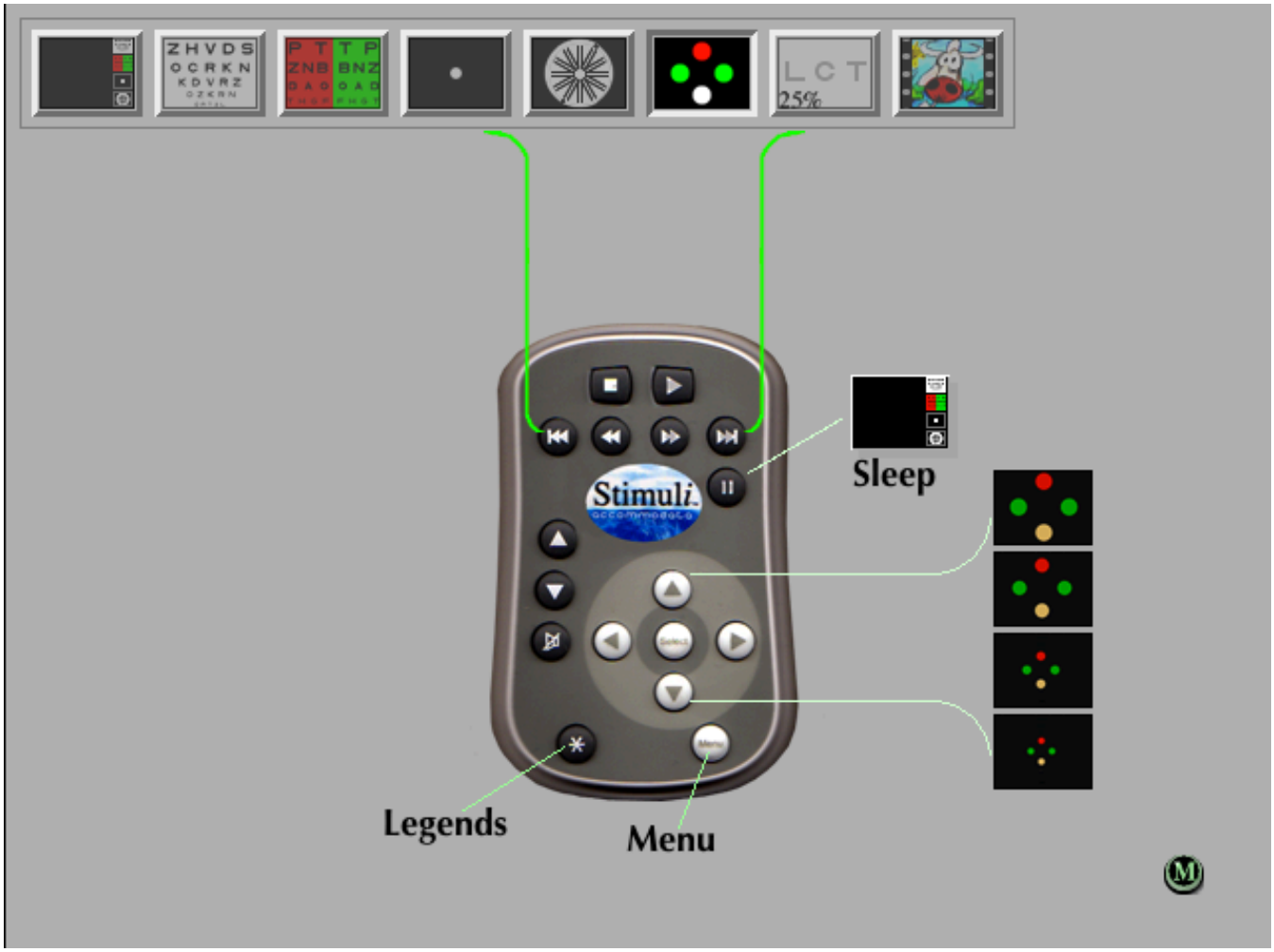
Pressing the Select button or Space/Select key makes the dot disappear and reappear.

The and feature buttons (or "comma" and "period" keys) Blink and Animate the dot respectively. For convenience, the Left and Right buttons duplicate the feature buttons.

The animated dot moves in a varying trajectory in the patient's central field.

The Up and Down buttons turn the background white or black respectively.

Sizable 4-Dot Test



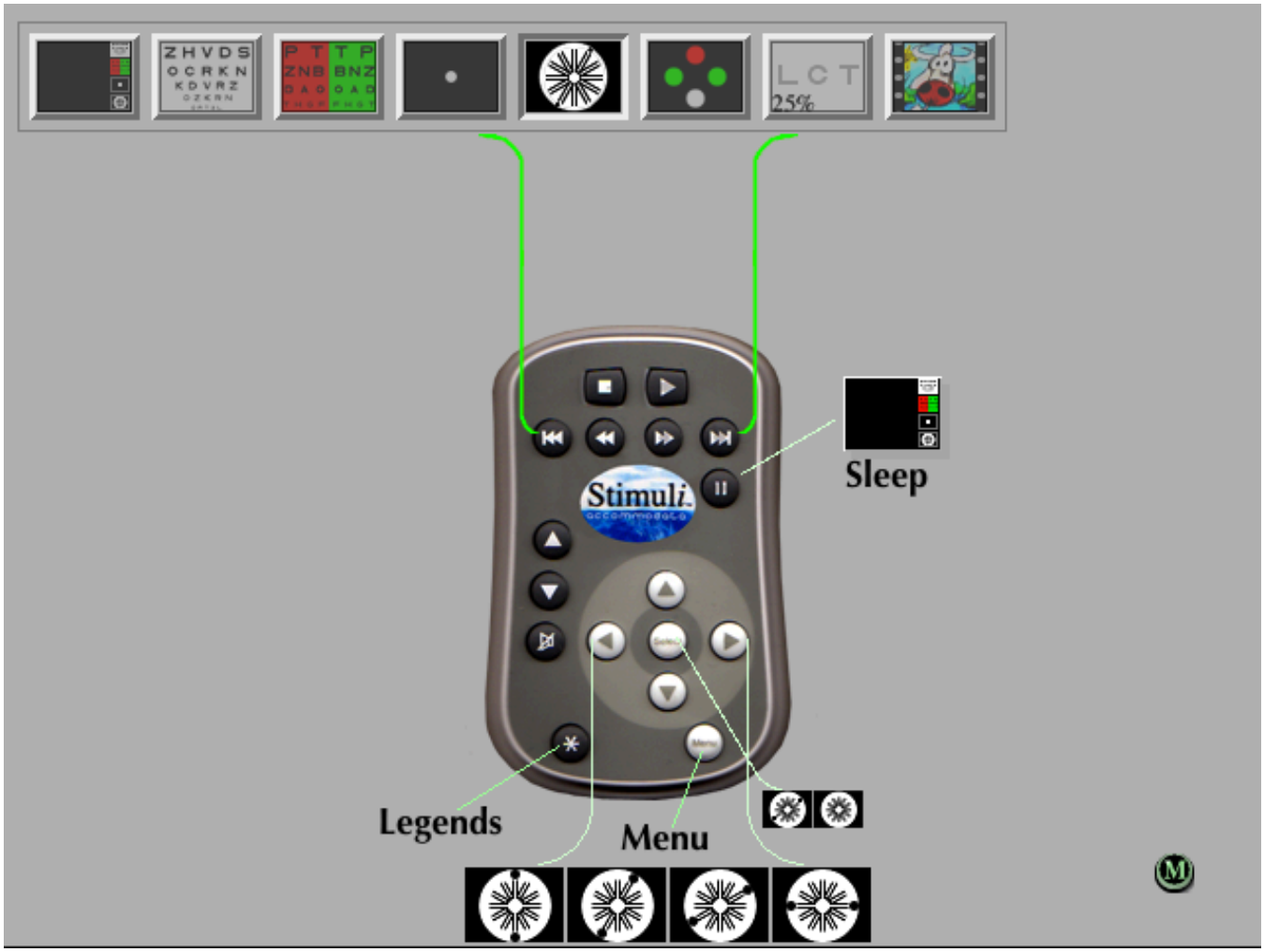
Our unique sizable Four Dot chart sets the standard. The test is correctly calibrated for the refraction distance.

The intensity of of the circles may be adjusted for different Red / Green eyewear to assure maximum extinction (via the Four Dot Setup).

This test can be sized with the Up and Down buttons.

The external and internal angles in degrees can be displayed or spoken via the button (or "Z").

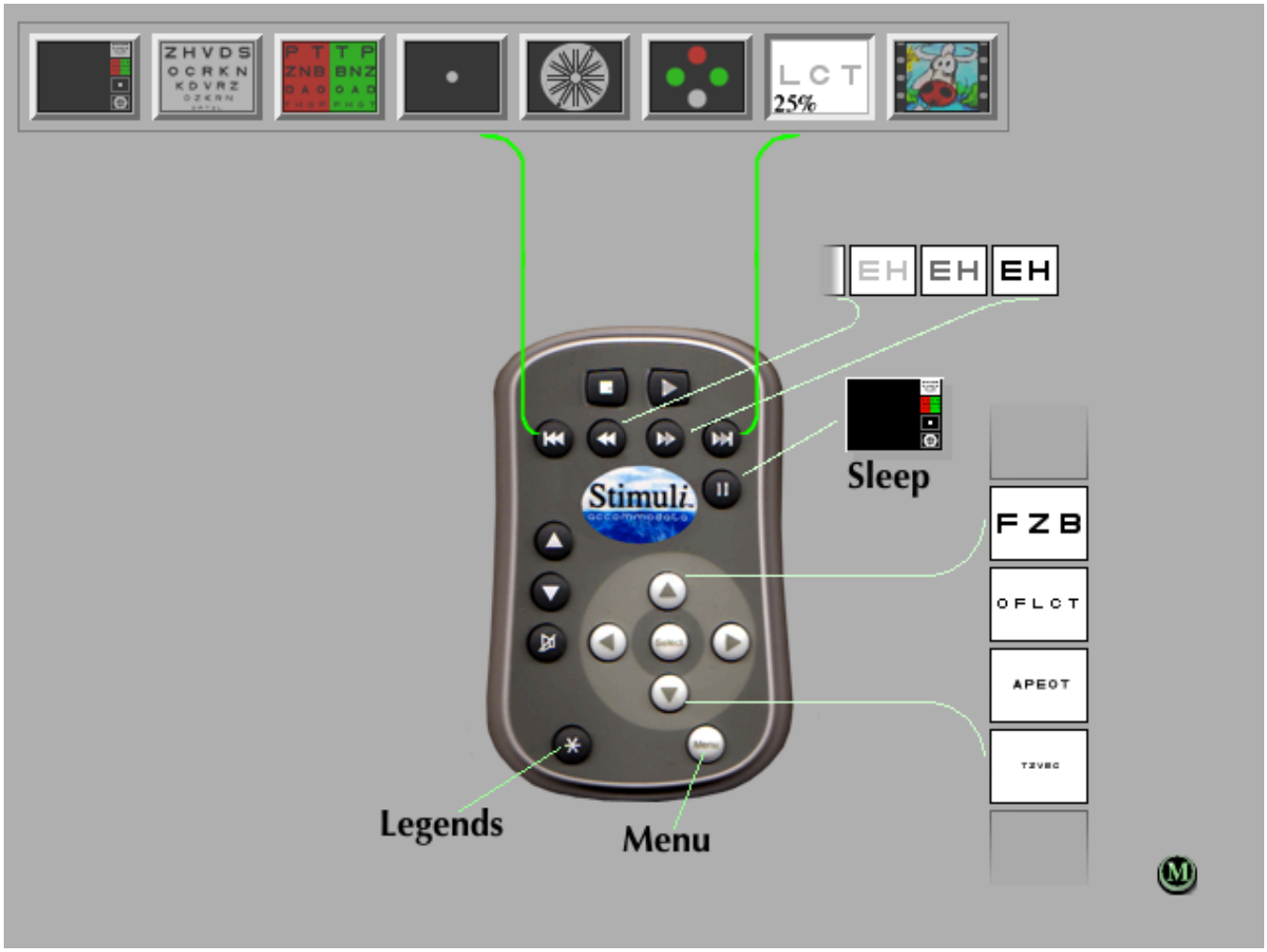
Astigmatic Dial



The Astigmatic dial can be presented and a confirmation dot can be displayed with the Left and Right buttons or keys. The indicators can be cleared with the Select button or Space/Select key.

The optional foot pedals duplicate the Left and Right buttons and the Select button.

Contrast Sensitivity

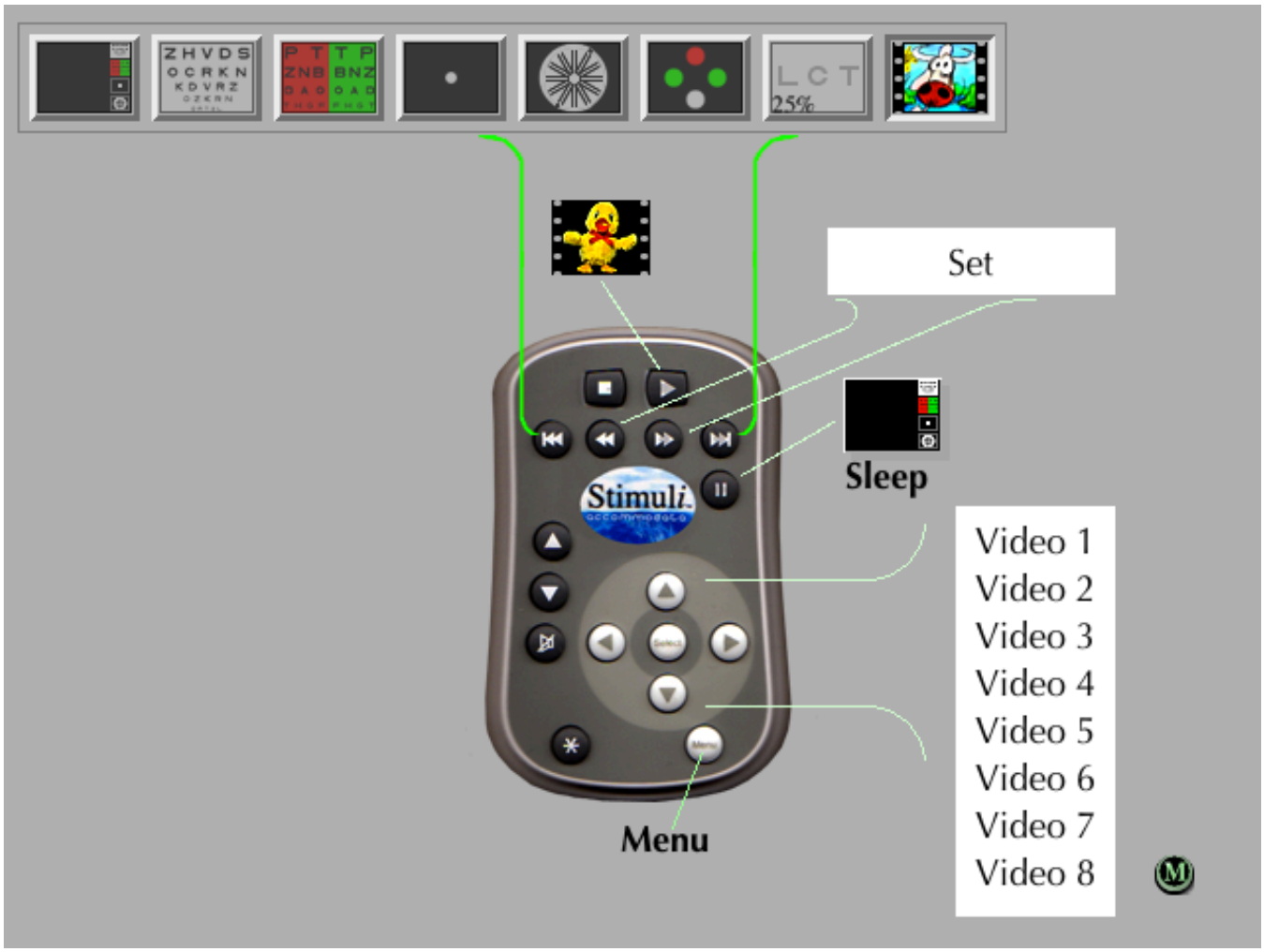


A Contrast chart, with similar features to the normal Acuity charts, has the ability to lower contrast of the optotypes.

Sizes are selected with the Up and Down buttons.
A new line of optotypes is generated each time the Select button (Space/Select key) is pressed.

The and buttons ("comma" and "period" keys) will adjust contrast level from 100% down to 0.6%. The contrast level and size can be displayed via the Legend button ("Z" key).

Playing Video



The Video Play button ("V" key) controls playing and stopping of video clips. When a video clip is playing the Up and Down buttons and the Direct Access keys control selection of additional clips.

The volume Up and Down buttons (shift-Up and shift-Down keys) are used to adjust volume when a film clip is playing. The Mute button mutes the audio while the clip continues to play.

The Pause button ("Q" key) will pause the video.

In addition to the provided set of pediatric cartoons, other sets of video clips (or still images) may be customized simply by creating a folder of videos or stills, and placing it in the Videos folder in the Stimuli folder. Stimuli will automatically recognize the new folder and add it to the clip sets.

Sets of multiple video clips can be selected using the and feature buttons when a clip is playing.

When a Clip Set is selected and playing, the Direct Access buttons allow direct selection of the first eleven clips in each set. The Up and Down buttons allow selection of every clip in the set.

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